UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II
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BY EMAIL AND REGULAR MAIL

January 3, 2012

William H. Hyatt, Jr., Esq.
K & L Gates LLP
One Newark Center, Tenth Floor
Newark, NJ 07102-5285

Re: Diamond Alkali, Lower Passaic River Study Area
Administrative Settlement Agreement and Order on Consent for Remedial Investigation and Feasibility Study, US. EPA Region 2 CERCLA Docket No. 02-2007-2009

Dear Mr. Hyatt:

The purpose of this letter is to memorialize that the U.S. Environmental Protection Agency ("EPA") and the Lower Passaic River Study Area Cooperating Parties Group ("CPG") have reached a resolution on seven of the issues in the CPG's dispute resolution process on the Risk Assessment and Risk Characterization ("RARC") Plan. The RARC dispute resolution process includes 11 issues, identified in the CPG's letter dated August 12, 2011.

On December 1, 2011, EPA and the CPG met to discuss the 11 dispute resolution issues. On December 5, 2011 EPA sent the CPG a document entitled "EPA Staff Recommended Revisions to Select Comments Disputed by CPG" (the "Recommended Revisions"), enclosed as Attachment A. On December 8, the CPG provided comments on the Recommended Revisions ("CPG Proposed Changes"), enclosed as Attachment B. On December 15, 2011, the CPG submitted to EPA its position on each of the 11 issues by letter enclosed as Attachment C.

Making reference to the attached Recommended Revisions, the CPG Proposed Changes, and the CPG's December 15, 2011 letter, this letter sets out the resolution of Issues 2, 3, 6, 7, 8, 9 and 11. Pursuant to Paragraph 65 of the Administrative Settlement Agreement and Order on Consent ("AOC") for the Remedial Investigation and Feasibility Study of the Lower Passaic River Study Area, CERCLA Docket No. 02-2007-2009, upon the signature of this letter by both EPA and the CPG, this resolution will be incorporated into the AOC.

Issues 1, 4, 5 and 10 remain unresolved as of the date of this letter and will be presented to Walter Mugdan, at the meeting scheduled for January 13, 2012.

Issue #2:

This issue is resolved for purposes of the dispute resolution process, based on the Recommended Revisions addressing the CPG's objections to EPA's Comments 11, 83, 84, 86, 87, and 92, with one further change relating to Comment 86 proposed in the CPG Proposed Changes, which

requested that EPA apply the Comment 86 Recommended Revision also to Section 1.1, first paragraph, third sentence, which was the subject of EPA Comment 10.

EPA accepts the CPG Proposed Change. The sentence that was the subject of Comment 10 will now read:

"The Lower River Segment (preliminarily defined as RM 0 to RM 6 based on salinity) is characterized as predominantly industrial in the lower river miles (near Newark Bay) and starts to become more commercial, residential, and recreational near RM 4."

Issue #3:

This issue is resolved for purposes of the dispute resolution process, based on the Recommended Revisions addressing the CPG's objections to EPA's Comments 77, 104, 105 and 128, with two further changes, relating to Comment 77 and Comment 128, proposed in the CPG Proposed Changes.

EPA accepts the CPG Proposed Changes to EPA's Recommended Revisions to Comment 77. The sentence that was the subject of Comment 77 will now read:

"The LPRSA is a large and complex sediment site, and current site conditions reflect its long industrial history and urban setting, although in the future, the river is expected to be used to a greater extent for recreational activities."

EPA accepts the CPG Proposed Changes to EPA's Recommended Revisions to Comment 128. The paragraph that was the subject of Comment 128 will now read:

"The NJAC Surface Water Quality Standards classification for the Passaic River from RM 0 to 8 includes secondary contact recreation (e.g, boating and fishing), and from RM8 to 17 includes primary contact recreation (e.g., swimming and wading), among other uses. A number of boating and sculling clubs already make frequent use of the river (Passaic River Rowing Association 2010, Nereid Boat Club 2010) and improvements are being made to boat ramps throughout the 17 miles (e.g., City of Newark 2010; NJDEP Green Acres Program, January 2008). Swimming under current conditions may be limited by the visible deterrents along large sections of the river, including the presence of trash and debris and the generally urban setting of the river. However, once the parks that are already under construction are completed, and when other recreational improvements planned in municipal master plans are undertaken, future conditions are expected to provide greater access to and be more conducive to swimming[1]. The exposure times and frequencies summarized in Table 3-4 are designed to reflect both current and future river users. While the number of people utilizing the river in such a way as to be exposed to surface water will likely increase as improvements to the river are made, the exposure times and frequencies for particular individuals already utilizing the river in these ways are not expected to increase."

EPA has also accepted the CPG Proposed Changes to EPA's Recommended Revision addressing the CPG's objections to Comment 104, as stated below in the discussion of Issue 8.

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[1] The national average for time spent swimming is 2.6 hours/day.

Issue #6:

This issue is resolved for purposes of the dispute resolution process. EPA has agreed to allow the CPG to use a cooking loss for crabs of 20% for PCBs under the CTE scenario. Subsequent to the December 1, 2011 meeting with EPA, the CPG has sent about 50 studies to EPA which the CPG deems relevant to the issue of cooking loss. EPA agrees to review and discuss with the CPG the studies as they relate to cooking loss for the CTE scenario only.

Issue #7:

This issue is resolved for purposes of the dispute resolution process. EPA and the CPG have agreed that the residential scenario will be evaluated qualitatively rather than quantitatively in the risk assessment. Results from the recent sampling of the recreational fields may be considered in the qualitative evaluation. This scenario will need to be evaluated quantitatively at some point in the future.

Issue #8:

This issue is resolved for purposes of the dispute resolution process based on the Recommended Revisions addressing the CPG's objections to EPA's Comments 104, 105 and 128, with two further changes, proposed in the CPG Proposed Changes.

EPA accepts the CPG Proposed Changes to EPA's Recommended Revisions to Comments 104 and 105. The section that was the subject of Comments 104 and 105 will now read:

"3.3.4.2 Swimmer

It is assumed that recreational users of the LPRSA may occasionally engage in swimming in the river. Recreational swimmers include children (1 to 6 years), adolescents (7 to 18 years), and adults (>18 years). Given the visible deterrents to swimming along large sections of the river, including the presence of trash and debris and the generally urban setting of the river, the exposure frequency and duration for swimming is assumed to be relatively low, both currently and in the future. To be clear, the number of exposed individuals will likely increase as improvements to the shoreline and river are made, but the exposure frequency and duration for some individuals already engaging in this scenario are not likely to increase. It is assumed that the current/future swimmer may be exposed to COPCs in sediment and surface water while swimming via:

- Direct Contact (incidental ingestion and dermal contact) with near shore river and mudflat surface sediment;
- Direct contact (incidental ingestion and dermal contact) with river surface water; and
- Inhalation of COPCs that may volatilize into outdoor air from exposed mudflat sediment and/or surface water.

Note that swimming is included in New Jersey's designated uses of the freshwater portion of the river from the confluence with Second River to Dundee Dam (RM 8 – 17), where the water has a classification of FW2-NT/SE2, though this stretch of the river frequently does not meet the standards associated with this classification. While the lower portion of the river is not currently

classified as suitable for swimming, New Jersey can change the classification as conditions warrant. The applicability of the swimming scenario throughout the LPRSA will be evaluated as part of the risk assessment, as discussed in Section 3.3.5 of this report."

EPA has also accepted the CPG Proposed Changes to EPA's Recommended Revisions to Comment 128, as stated above in the discussion of Issue 3.

Issue #9:

This issue is resolved for purposes of the dispute resolution process based on the Recommended Revision addressing the CPG's objections to EPA's Comment 78.

Issue #11:

This issue is resolved for purposes of the dispute resolution process. EPA has agreed that the CPG may leave the mummichog testable risk question as it appears in the RARC Plan, consistent with the wording in the Problem Formulation Document. The CPG has agreed that egg numbers from the literature will be presented in the baseline ecological risk assessment to provide context for evaluating the Passaic River numbers.

Conclusion

To confirm that the statement above accurately sets forth the CPG's position, EPA requests that the CPG sign this letter on the signature line provided below. EPA recognizes that the CPG has agreed to the resolution of these issues for purposes of the dispute resolution process, while continuing to assert that it does not agree with the substance of EPA's position, as set forth in the attached CPG letter dated December 15, 2011.

Sincerely yours,

R. Basso

Ray Basso
Director, Lower Passaic River Project

cc: W. Mugdan, ERRD
E. Schaaf, ORC
S. Vaughn, ERRD
S. Flanagan, ORC
P. Hick, ORC

Accepted and Agreed to
on behalf of the Cooperating Parties Group by:

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William H. Hyatt, Esq.
CPG Coordinating Counsel

ATTACHMENT A

EPA Staff Recommended Revisions to Select Comments Disputed by CPG

Human Health Risk Assessment

CPG Issue #1:

Comments 100, 101, and 102:

These comments all relate to Page 90, Section 3.3.4, Paragraph 3: "As stated in USEPA's September 10, 2010 comments, the scenarios and exposure parameter assumptions are intended to capture exposures under a future site condition, when parks and open spaces have been improved and expanded or developed at sites currently under other uses. Such improvements could make people more likely to visit and spend more time along the river. USEPA Region 2 has directed that the same set of scenarios and exposure parameter assumptions be used to assess both current and potential future baseline site risks. As a revitalized and redeveloped riverfront is not the current condition, this approach will lead to overestimates of current exposures. However, as directed by USEPA Region 2, the same scenarios and exposure parameter assumptions are used to account for both current and future site conditions."

EPA staff recommendation: Replace the entire paragraph that is referenced above with:

"In accordance with USEPA Guidance (USEPA 1989b, USEPA 2001c), the scenarios and exposure parameter assumptions are intended to capture exposures under both current and future site conditions. All of the exposure pathways are currently complete. While expected improvements to the river and shoreline will likely increase the number of individuals utilizing the river, the exposure frequency and duration for some individuals already utilizing the river will not likely increase. As such, the use of combined current/future exposure assumptions is appropriate."

Comment 105:

Page 92, Section 3.3.4.2, last paragraph: "Because the likelihood of swimming in the LPRSA depends on several factors, including access, riverbank type, adjoining land, and waterway uses, it may not be appropriate to include swimming as a potential exposure pathway throughout the river. The applicability of the swimming scenario throughout the LPRSA will be evaluated based on consideration of the above factors, as discussed in Section 3.3.5.

EPA July 11, 2011 comment: Delete and replace with: "In accordance with USEPA guidance (USEPA 1995, 2001d), comprehensive community master plans are a valuable source of information in determining reasonably anticipated future land use. Many municipalities and counties along the Lower Passaic River have published master plans that call for the expansion and improvement of parks and open space along the river that will lead to higher exposure in the future (City of Newark 2010, City of Newark et all 2004, Clarke et al 2004, Clarke et al 1999, Heyer et al 2003, Heyer et al 2002, Borough of Rutherford et al 2007). While the general usage types of the river may remain the same in the future, the usage frequency and number of access locations should increase over time based on these plans. This increased usage is taken into account in the exposure parameters discussed in Section 3.3.5."

EPA staff recommendation: This comment, and Comment 104 (which the CPG disputes under Issues #3 and #8), both relate to Section 3.3.4.2 of the RARC. The following language should be used to replace the language in Section 3.3.4.2, in its entirety:

Section 3.3.4.3 Swimmer

It is assumed that recreational users of the LPRSA may occasionally engage in swimming in the river. Recreational swimmers include children (1 to 6 years), adolescents (7 to 18 years), and adults (>18 years). Given the visible deterrents to swimming along large sections of the river, including the presence of trash and debris and the generally urban setting of the river, the exposure frequency and duration for swimming is assumed to be relatively low, both currently and in the future. To be clear, the number of exposed individuals will likely increase as improvements to the shoreline and river are made, but the exposure frequency and duration for some individuals already engaging in this scenario are not likely to increase. It is assumed that the current/future swimmer may be exposed to COPCs in sediment and surface water while swimming via:

- Direct Contact (incidental ingestion and dermal contact) with near shore river and mudflat surface sediment;
- Direct contact (incidental ingestion and dermal contact) with river surface water; and
- Inhalation of COPCs that may volatilize into outdoor air from exposed mudflat sediment and/or surface water.

Note that swimming is included in New Jersey's designated uses of the freshwater portion of the river from the confluence with Second River to Dundee Dam (RM 8 – 17), where the water has a classification of FW2-NT/SE2, though this stretch of the river does not always meet the standards associated with this classification. While the lower portion of the river is not currently classified as suitable for swimming, New Jersey can change the classification as conditions warrant. The applicability of the swimming scenario throughout the LPRSA will be evaluated as part of the risk assessment, as discussed in Section 3.3.5 of this report.

Comment 130:

Page 102-103, Section 3.3.4.8, "Sediment and Surface Water Exposure Frequencies," 2nd paragraph: "The USEPA Region2-directed sediment and surface water exposure frequencies for each receptor scenario are summarized in Table 3-5. The exposure frequencies reflect an improved and more attractive LPRSA where recreational activities involving contact with water are common (e.g., 259 days/year surface water exposure for the adult boater, 39 days/year sediment exposure for the adult swimmer). Since these frequencies do not represent current site conditions, their use will lead to overestimates of potential risks."

EPA July 11, 2011 comment: Delete and replace with:

> Sediment and surface water exposure frequencies for each receptor scenario are summarized in Table 3-5. The exposure frequencies for the angler, swimmer, wader, and boater reflect both current conditions on the river, as well as future conditions after shoreline improvements laid out in municipal master plans are carried out. Adult anglers, swimmers, and waders are assumed to fish, swim or wade in locations where they would contact sediment and surface water once a week during the summer months (13 weeks/year), or 13 days per year, for the RME scenario, and once every two weeks, or 7 days per year, for the CTE scenario. Adolescent anglers, swimmers, and waders are assumed to be exposed to sediment and surface water 3 days per week during the summer months, or 39 and 20 days per year respectively for the RME

and CTE scenarios. Anglers may catch fish on more days than is assumed here, but are not expected to contact sediment and surface water every day that they fish.

The surface water and sediment exposure frequency for the older child boater who canoes or kayaks is assumed to be equal to other recreational scenarios like swimming or wading, and is therefore assumed to occur 13 days/year for the RME scenario and 7 days/year for the CTE scenario.

Surface water exposure frequencies for the adult and teenage (14 to 18 years old) boaters are based on information provided by Passaic River boating clubs (PRRA 2010, Nereid Boat Club 2010). The rowing season extends from March through mid-November (37 weeks). Adult boaters row up to 7 days/week, for 1 to 2 hours/day; average frequency is 250 days/year (7 days/week x 37 weeks/year) and the CTE frequency is 111 days/year (3 days/week x 37 weeks/year). For the teenage boaters, the high school rowing season primarily is from late February through the end of May, and sometimes includes rowing minimally in the fall. The high school teams row 5 to 7 days per week for 1 to 2 hours per day. Based on this information, for teenage boaters (14 to 18 years old) the RME frequency is 98 days/year (7 days/week x 14 weeks/year) and the CTE frequency is 70 days/year (5 days/week x 14 weeks/year).

Exposure to sediment for the adult and teenage boaters will occur with a much lower frequency than exposure to surface water. Rowing locations south of Dundee Dam launch from docks, so contact with the riverbank happens when rowers flip out of the boat and need to wade in to get back in. It is, therefore, assumed that sediment contact occurs once a month for the RME scenario and once every two months for the CTE scenario. Accounting for the length of rowing season (37 weeks for adults and 14 weeks for teenage boaters), the adult sediment exposure frequency is 9 days/year for RME and 4 days/year for CTE; the teenage boater exposure frequency is 4 days/year from RME and 2 days/year for CTE."

EPA staff recommendation: No change from July 11, 2011 comment letter, except to add the following sentence after the second sentence of EPA's recommended language:

"To be clear, the number of exposed individuals will likely increase as improvements to the shoreline and river are made, but the exposure frequency and duration for some individuals already engaging in these scenarios are not likely to increase."

[Note: EPA agrees that if the risk assessment shows that the swimmer scenario is driving the risk, we will revisit our approach to this aspect of the assessment.]

CPG Issue #2

Comment 11:

Page 2, Section 1.1, 1st paragraph, as submitted in February 2011 RARC : "The LPRSA was increasingly urbanized for more than two centuries; it has served as the receiving environment for industrial and municipal waste discharges since the nineteenth century."

EPA July 11, 2011 comment: Add after that line at the end of the paragraph: "However, it is now increasingly used for recreational activities such as boating, fishing, and crabbing as parks and boat

ramps are actively being restored or newly established (site-specific information provided by Passaic River Rowing Association 2010; Nereid Boat Club 2010; City of Newark 2010).

EPA staff recommendation: No change from the July 11, 2011 comment letter, except to remove "crabbing" from the list of activities.

Comment 83:

Page 69, Section 3.3.1.1, 2nd paragraph: "The lower 6 miles are predominantly commercial and industrial with little public access."

EPA July 11, 2011 comment: Delete and replace with the following: "Adjacent land use is predominantly industrial in the lower river miles (near Newark Bay) and transitions to commercial, residential and recreational near RM4. Land use is increasingly residential and recreational above RM 8."

EPA staff recommendation: Delete and replace with the following:

"Adjacent land use is predominantly industrial in the lower river miles (near Newark Bay) and starts to include more commercial, residential, and recreational uses around RM 4, with the locations of Riverbank and Minish Parks."

Comment 84:

EPA Comment in July 11, 2011 letter: Add "Potential Access to Shore" icons at Pathmark Parking Lot, RM 6.5 eastern bank; at RM 5.0, west bank (across street from NJPAC); at RM 4.0, south bank (across Raymond Blvd. from Riverbank Park).

EPA staff recommendation: Add "Potential Access to Shore" icons at Pathmark Parking Lot, RM 6.5 eastern bank and at RM 4.0, south bank (across Raymond Blvd. from Riverbank Park). It is not necessary to place an icon at RM 5.0, though we do have anecdotal evidence that people do go near the water there.

Comment 86:

Page 80, Section 3.3.1.1., "Lower River Segment," 1st sentence: "The Lower River Segment (preliminarily defined as RM 0 to RM 6 based on salinity) is characterized as predominantly industrial/commercial in nature, with very little public access to the shoreline."

EPA July 11, 2011 comment: Rephrase as follows: "The Lower River Segment (preliminarily defined as RM 0 to RM 6 based on salinity) is characterized as predominantly industrial in the lower river miles (near Newark Bay) and transitions to commercial, residential and recreational near RM 4."

EPA staff recommendation: Rephrase as follows:

"The Lower River Segment (preliminarily defined as RM 0 to RM 6 based on salinity) is characterized as predominantly industrial in the lower river miles (near Newark Bay) and starts to become more commercial, residential, and recreational near RM 4."

Comment 87:

Page 80, Section 3.3.1.1, "Lower River Segment": "The shoreline along this stretch of the river consists of active or abandoned industrial areas."

EPA July 11, 2011 comment: Delete and replace with "The shoreline along this stretch of the river consists of active or abandoned industrial areas up to RM4, but then transitions to thin strips of park land abutting the river as land use becomes more commercial and residential."

EPA staff recommendation: Delete and replace with:

"The shoreline along this stretch of river consists mainly of active or abandoned industrial areas up to RM 4, but then starts to include more thin strips of park land abutting the river as land use starts to become more commercial, residential, and recreational."

Comment 92:

Page 81, Section 3.3.1.1., "Upper River Segment": "The Upper River Segment (preliminarily defined as RM 10 to the Dundee Dam) transitions, with increasing distance upriver, from a mixture of industrial, commercial and some residential areas and public parks to more residential areas, compared with other sections of the river."

EPA July 11, 2011 comment: Delete sentence and replace with "The Upper River Segment (preliminarily defined as RM10 to the Dundee Dam) is the most residential and recreational segment of the river."

EPA staff recommendation: The CPG may add EPA's sentence (without the parenthetical) after the CPG sentence, rather than delete the CPG sentence and replace it with EPA's sentence.

CPG Issue #3

Comment 77:

Page 64, Section 3.3, 2nd paragraph, 1st sentence: "The LPRSA is a large and complex sediment site, and current site conditions reflect its long industrial history and urban setting."

EPA July 11, 2011 comment: Insert at the end of the sentence the following clause: ", although in the future, most of the river is increasingly expected to be used for recreational activities."

EPA staff recommendation: Add modified clause at the end of the sentence:

", although in the future, large sections of the river are expected to be used increasingly for recreational activities."

Comment 104:

Page 91, Section 3.3.4.2, 1st paragraph: "It is assumed that recreational users of the LPRSA may occasionally engage in swimming in the river. Recreational swimmers include children (1 to 6 years), adolescents (7 to 18 years), adults (>18 years). Given the visible presence of shoreline and floating debris and trash, the presence of pathogenic contamination, and the urban setting of the river, including lack of public beaches, it is anticipated that swimming now and in the foreseeable future will be limited. However, based on EPA's directive, it is assumed that both the current and future swimmer will be exposed to COPCs in sediment and surface water while swimming in the river via:.."

EPA July 11, 2011 comment: Delete and replace with the following: "Individuals of all ages may visit the Passaic River to swim. Swimming is included in New Jersey's designated use of the freshwater portion of the river from the confluence with Second River to Dundee Dam (RM 8-17), where the water has a classification of FW2-NT/SE2. Swimming under current conditions may be limited by the visible presence of shoreline and floating debris, and trash. However, once the parks that are already under construction are completed, and when other recreational improvements in municipal master plans are undertaken, future conditions are expected to provide greater access to and be more conducive to swimming. Therefore, it is assumed that the current and future swimmer will be exposed to COPCs through contact with sediment while entering and leaving the river, and while swimming. Adult (>18 years), adolescent (7 to 18 years old) and young child (1 to 6 years old) swimmers are assumed to be exposed to sediment and surface water via: ..."

EPA staff recommendation: See response to Comment 105 under CPG Issue #1. Use the language provided in that response to replace Section 3.3.4.2 in its entirety.

Comment 105:

See response for Comment 105 under CPG Issue #1.

Comment 128:

Page 101, Section 3.3.4.8, "Surface Water Exposure Time," 1st paragraph: "Given the highly developed and urbanized nature of the LPRSA, including the pathogenic contamination throughout the study area, frequent and extended periods of swimming, wading, or other activities involving intensive contact with surface water are not expected to occur under current or foreseeable future uses. Thus, the USEPA Region 20directed exposure times and frequencies for the receptor scenarios involving contact with surface water are likely to overestimate exposures in the LPRSA. The use of USEPA's national default swimming exposure time of 2.6 hours per event does not reflect site-specific conditions and was not intended for a water body with compromised water quality and no designated swimming areas. However, at the direction of USEPA, this default assumption is used in the baseline HHRA for the LPRSA. The USEPA-directed surface water exposure times for each receptor scenario are summarized in Table 3-4."

EPA July 11, 2011 comment: Delete and replace with the following, "The NJAC Surface Water Quality Standards classification for the Passaic River from RM 0 to 8 includes secondary contact recreation (E.G, boating and fishing), and from RM8 to 17 includes primary contact recreation (e.g., swimming and wading), among other uses. A number of boating and sculling clubs already make frequent use of the river (Passaic River Rowing Association 2010, Nereid Boat Club 2010) and improvements are being made

to boat ramps throughout the 17 miles (City of Newark 2010). Swimming under current conditions may be limited by the visible presence of shoreline and floating debris and trash. However, once the parks that are already under construction are completed, and when other recreational improvements planned in municipal master plans are undertaken, future conditions are expected to provide greater access to and be more conducive to swimming[1]. Therefore, exposure times and frequencies are designed for both current and future river users who will be exposed to COPCs in sediment and surface water, as summarized in Table 3-4."

EPA staff recommendation: Delete last sentence of EPA proposed language ("Therefore...") and replace with:

"The exposure times and frequencies summarized in Table 3-4 are designed to reflect both current and future river users. While the number of people utilizing the river in such a way as to be exposed to surface water will likely increase as improvements to the river are made, the exposure times and frequencies for particular individuals already utilizing the river in these ways are not expected to increase."

CPG Issue #4

Comment 7:

EPA July 11, 2011 comment: Since the entire RARC is subject to USEPA approval, the terms "directed for use by USEPA Region 2" or "USEPA Region 2-directed" are unnecessary specifications and should be deleted. Specific comments below provide many instances.

EPA staff recommendation: In general, no change from EPA's 7/11/11 comment, except as noted below.

Comment 78:

Page 64, Section 3.3, 2nd paragraph, last sentence: While use of some default or surrogate assumptions will be necessary in the remedial decision-making process, USEPA guidance documents stress the importance of using data that represent the characteristics of the local population(s) and site when possible and appropriate (USEPA 1989a, b, 1991a, 1997b, 1998a, 2000a).

EPA July 11, 2011 comment: delete and replace with "However, USEPA guidance (USEPA 1991a) also allows the use of default values developed by USEPA when there is a lack of site-specific data or consensus on which parameter value to choose, given a range of possibilities."

EPA staff recommendation: The CPG may add EPA's language after the CPG's last sentence, rather than delete it.

Comment 95:

Page 82, Section 3.3.2, 1st paragraph, 5th sentence: At the direction of USEPA Region 2, an additional receptor (Worker) not identified in the PFD has been included as a potential receptor.

[1] The national average for time spent swimming is 2.6 hours/day.

EPA July 11, 2011 comment: Delete "At the direction of USEPA Region 2,"

EPA staff recommendation: EPA agrees to remove this comment; the referenced language may remain in the plan.

Comment 99:

Page 90, Section 3.3.4, 2nd paragraph: The values to be used for each of the RME and CTE exposure parameters are those that USEPA Region 2 directed CPG to use, were issued as directives on November 5, 2010, and are representative of USEPA default values. These values are presented in this Revised RARC Plan. On September 10, 2010, USEPA Region 2 provided comments on CPG's Draft RARC Plan. USEPA's comments included specific scenarios and exposure parameter values to be used in the baseline HHRA. The exposure pathways, receptors, and parameter values were provided in tabular form following *Risk Assessment Guidance for Superfund (RAGS) Part D* format (USEPA 2001c). These tabulated scenarios and parameter values are included as Appendix C of this Plan.

EPA July 11, 2011 comment: Delete 2nd paragraph (unnecessary explanation).

EPA staff recommendation: CPG may leave this paragraph in, rewording the beginning as follows:

"The values to be used for each of the RME and CTE exposure parameters are generally those that USEPA Region 2 directed CPG to use. All of EPA's directions are consistent with EPA guidance, practices, and policies for conducting risk assessments. These values are presented ...."

CPG Issue #5

Comment 110 (combining 110b and 110d):

Page 94, Section 3.3.4.7: The ingestion rate is the amount of fish that an individual consumes on a daily basis based on averaging the reported consumption rate in one year over 365 days (i.e., an annualized rate). As directed by USEPA Region 2 and listed in Appendix C, the USEPA's default fish ingestion rates for recreational freshwater anglers cited in USEPA's Exposure Factors Handbook (USEPA 1997b) will be used. These rates are based on mail surveys of licensed anglers who pursue sportfishing in Maine, New York (Lake Ontario), and Michigan (Great Lakes), and include both consumers and non-consumers (USEPA 1997b). The fish ingestion rates for the adult, adolescent, and child angler receptors as selected by USEPA Region 2 are as follows:

- *Adult angler fish ingestion rate*: RME of 26 g/day (the 95th percentile in the USEPA's Exposure Factors Handbook), which is equivalent to approximately 40 half-pound meals/year, and CTE of 8 g/day (the recommended mean in the USEPA's Exposure Factors Handbook) (USEPA 1997b)
- *Adolescent angler (ages 7 to 18 years) fish ingestion rate*: RME of 17 g/day and CTE of 5 g/day, based on USEPA's assumption that the intake of the adolescent is approximately two-thirds that of the adult (USEPA 1997b)
- *Child angler (ages 1 to 6 years) fish ingestion rate*: RME of 8 g/day and CTE of 3 g/day, based on USEPA's assumption that the intake of the child is approximately one-third that of the adult (USEPA 1997b)17

EPA July 11, 2011 comment: Delete and replace with, "The ingestion rate is the amount of fish that an individual consumes on a daily basis, based on averaging the reported consumption rate in 1 year over 365 days. Ingestion rates for fish have been annualized and are presented in grams eaten per day (g/day). The ingestion rate assumes the fish are caught while angling from the LPRSA only. It is expected that ingestion of fish from local sources will be the main source of fish consumption for the anglers. For consumption of fish, ingestion rates based on data collected for recreational anglers may obtained from the Exposure Factors Handbook (EFH) (USEPA 1997b), three surveys conducted in New Jersey (Burger 2002, May and Burger 1996, Center for Public Interest Polling and New Jersey Marine Sciences 1993, Burger et al 1998) and one survey conducted in New York (Connelly et al 1992). Only the 1997 EFH, Burger 2002 and Connelly et al 1992 contain enough information to calculate statistical distributions for the ingestion rates. Only the Burger 2002 and Connelly et al 1992 (as analyzed and applied in the externally peer-reviewed Human Health Risk Assessment for the Hudson River in TAMS Consultants 2000) included data from the New York/New Jersey Harbor, which encompasses the tidal portion of the Lower Passaic River (the 1997 EFH data were from surveys of anglers in Michigan, Maine and the Great Lakes). Burger 2002 was from a survey conducted in the Newark Bay Complex. Connelly et al (1992) was a New York Statewide Angler survey, whose data were used to calculate ingestion rates for the peer-reviewed Human Health Risk Assessment for the Hudson River (TAMS Consultants 2000). Therefore, the fish ingestion rate for the Lower Passaic River RME adult angler (44 g/day) is calculated by averaging the high end (approximately 90th percentile) estimates from Burger 2002 (57 g/day) and Connelly et al 1992 (32 g/day). For the CTE value (13 g/day), the average of the mean of 22 g/day from Burger 2002 and the 50th percentile value of 4 g/day from Connelly et al 1992 is used.

A creel angler survey was conducted in the Lower Passaic River, as reported in Ray et al 2007. The work plan for this survey was submitted to USEPA for review, but not approved; therefore, results from the survey cannot be used in this risk assessment. However, it is noted that the fish ingestion rates for the RME adult based on data from Burger 2002 (57 g/day) and Connelly et al 1992 (32 g/day) are consistent with the ingestion rate calculated from data reported in Ray et al 2007 (28 g/day). Ray et al 2007 reported that only 7 anglers of those surveyed reported consuming fish. The small number of consumers limits statistical evaluation of the consumption rate to the maximum reported consumption rate of 28 g/day (USEPA 1992d)."

EPA staff recommendation: No change from language in July 11, 2011 comment letter, except to add the following language after the first sentence, "The following analysis of ingestion rates is based on EPA's Technical Memorandum on Fish and Crab Consumption Rates dated July 25, 2011." The memorandum should also be referenced as an appendix to the report.

Comment 113:

Page 96, Section 3.3.4.7, Crab Ingestion Rate: For crabs, USEPA has directed that consumption rates be based on a 1999 survey of Newark Bay anglers, including crabbers (Burger 2002). Based on the responses of 110 anglers who reported consuming crab, a mean crab ingestion rate was derived by multiplying the number of crab meals eaten per month by the number of crabs eaten at each meal by the number of months per year that anglers go crabbing (and presumably eat their catch), assuming the average serving size from one crab is 70 g. Based on the Burger analysis, USEPA Region 2 has determined the following crab consumption rates:

- *Adult receptor crab ingestion rate*: RME of 23 g/day and CTE of 16 g/day

- *Adolescent receptor (ages 7 to 18 years) crab ingestion rate*: RME of 15 g/day and CTE of 11 g/day, based on the assumption that the intake for the adolescent is approximately two-thirds that of the adult (USEPA 1997b)
- *Child receptor (ages 1 to 6 years) crab ingestion rate*: RME of 8 g/day and CTE of 5 g/day, based on the assumption that the intake for the child is approximately one-third that of the adult (USEPA 1997b)

EPA July 11, 2011 comment: Delete and replace with, "The ingestion rate is the amount of crab that an individual consumes on a daily basis based on averaging the reported consumption rate in 1 year over 365 days. Ingestion rates for crab have been annualized and are presented in grams eaten per day (g/day). The ingestion rate assumes the crabs are caught while angling from the LPRSA only. It is expected that the main source of crab for ingestion is from the LPRSA.

Two studies provided data on crab consumption (Burger 2002; Burger et al 1998). Consistent with the recommendations in RAGS Part A, a crab consumption rate was calculated at the 90th percentile, since the 95th percentile was not available. In Burger (2002), for people who only crabbed, approximately 4% of all respondents (6.3% of "consumers only") ate more than 4,200 g/month. Similarly, about 15% of all respondents (23% of "consumers only") ate more than 1,400 g/month. Excluding the non-consumers, the 90th percentile crab ingestion rate for crab consumers is estimated to be 3,590 g/month, or 32 g/day (assuming crabs are consumed 3.3 months of the year, per Table 2 of the paper). The mean crab ingestion rate is 16 g/day, based on data provided in Table 2 of the Burger (2002) paper (assuming that 5,760 g/year is consumed during 3.3 months of the year). This mean crab ingestion rate is consistent with the mean value of 16.6 g/day from Barnegat Bay (Burger et al. 1998). Burger et al. 1998 did not report enough information to support statistical calculations of a 95th percentile ingestion rate. Other studies in this area reported crab consumption but an ingestion rate could not be calculated based on the information presented (Burger et al. 1999 and Kirk-Pflugh et al. 1999).

The 90th percentile crab ingestion rate of 32 g/day is selected as the adult RME ingestion rate and the mean crab ingestion rate of 16 g/day is selected as the adult CTE rate. Ingestion rates for the child and adolescent receptors are estimated assuming rates 1/3 and 2/3 those of the adult ingestion rates, respectively, as is assumed for fish ingestion."

EPA staff recommendation: No change from language in July 11, 2011 comment letter, except to add the following language after the first sentence, "The following analysis of ingestion rates is based on EPA's Technical Memorandum on Fish and Crab Consumption Rates dated July 25, 2011." The memorandum should also be referenced as an appendix to the report.

CPG Issue #6

Comments 112, 114, and 135:

[The CPG has agreed to send EPA studies relevant to its request to discuss CTE scenarios with EPA. EPA staff will review the studies to determine whether we think there is a basis to engage in those discussions – and therefore withdraw this issue from the dispute resolution process.]

Comment 115:

Page 97, Section 3.3.4.7, Cooking Loss for Crab: As directed by USEPA Region 2, for both the RME and CTE crab consumption scenarios, a preparation and cooking loss factor of zero percent will be used for all contaminants. This is based on USEPA Region 2's assumption that anglers consume the cooking water every time they eat crab. The assumption of no cooking loss is a very conservative assumption, particularly for the CTE scenario. Based on NJDEP survey data, most individuals who catch and consume crabs do not eat the hepatopancreas, and many remove it prior to cooking (Macro 2007, 2008; NJDEP 2002; ORC Macro 2006). Even if the hepatopancreas is not removed prior to cooking, contaminants in the hepatopancreas that may be released during cooking do not result in higher concentrations in the muscle tissue (Zabik et al. 1992). Removal of the hepatopancreas prior to cooking and discarding the cooking water is also recommended by NJDEP's crab consumption advisory (NJDEP and NJDHSS 2010). USEPA Region 2 has agreed to review the appropriateness of assuming no cooking loss for the CTE crab consumption scenario; the values to be used in the baseline HHRA may be amended pending the outcome of USEPA Region 2's review.

EPA July 11, 2011 comment: Delete and replace with, "A cooking loss factor accounts for the amount of contaminant in tissue that is lost during the cooking process and not consumed by the receptor. Blue crabs are most often cooked whole by boiling or steaming (Sea Grant Marine Advisory Program 2006). Exposure to the contaminant depends not only of the specific part of the crab consumed, but also on the method of cooking. NJDEP (2010) reports that no specific cooking method can be relied on to reduce the chemical contaminant levels in blue crabs. Because the crab is cooked whole, even if the consumer does not eat the hepatopancreas, exposure to the chemical contaminant may still occur if the crab is cooked before the hepatopancreas is removed and if the liquid used to boil the crab is used in juices, sauces, bisques, or soups. It should be assumed that the cooking liquid is consumed along with the crabmeat. Therefore, cooking loss for crabs is assumed to be 0 percent for all contaminants under the RME and CTE scenarios, because data are not currently available from EPA or published literature to support any type of reduction in concentration under this type of exposure scenario. A study published by Zabik et al. (1992), entitled "Effect of Preparation and Cooking on Contaminant Distributions in Crustaceans: PCBs in Blue Crab," was reviewed. The study showed that boiling or steaming reduced PCB concentrations by greater than 20 percent in tissue, and that the cooking water contained about 80 percent of the PCBs that were lost from the crabs (the study author was contacted to confirm these results). Thus, most of the PCBs lost from the crabs could still be consumed if the cooking water is used to prepare soups, sauces, pasta, etc. Potential cooking loss assuming discarding the cooking water may be discussed in the uncertainty section of the risk assessment, but a cooking loss of 0 percent should still be assumed for the RME and CTE scenarios in the risk assessment."

EPA staff recommendation: Since EPA will allow the use of a cooking loss of 20% for PCBs under the CTE scenario, please use the following revised language:

"A cooking loss factor accounts for the amount of contaminant in tissue that is lost during the cooking process and not consumed by the receptor. Blue crabs are most often cooked whole by boiling or steaming (Sea Grant Marine Advisory Program 2006). Exposure to the contaminant depends not only of the specific part of the crab consumed, but also on the method of cooking. NJDEP (2010) reports that no specific cooking method can be relied on to reduce the chemical contaminant levels in blue crabs. Because the crab is cooked whole, even if the consumer does not eat the hepatopancreas, exposure to the chemical contaminant may still occur if the crab is cooked before the hepatopancreas is removed and if the liquid used to boil the crab is used in juices, sauces, bisques, or soups. It should be assumed

that the cooking liquid is consumed along with the crabmeat. Therefore, cooking loss for crabs is assumed to be 0 percent for all contaminants under the RME, because data are not currently available from EPA or published literature to support any type of reduction in concentration under this type of exposure scenario. A study published by Zabik et al. (1992), entitled "Effect of Preparation and Cooking on Contaminant Distributions in Crustaceans: PCBs in Blue Crab," was reviewed. The study showed that boiling or steaming reduced PCB concentrations by greater than 20 percent in tissue, and that the cooking water contained about 80 percent of the PCBs that were lost from the crabs (the study author was contacted to confirm these results). Thus, most of the PCBs lost from the crabs could still be consumed if the cooking water is used to prepare soups, sauces, pasta, etc. Potential cooking loss assuming discarding the cooking water may be discussed in the uncertainty section of the risk assessment, but a cooking loss of 0 percent should still be assumed for the RME scenario. A PCB cooking loss of 20% based on Zabik et al. should be assumed for the CTE scenario in the risk assessment."

CPG Issue # 7

Comment 109:

Page 93, Section 3.3.4.5, 1st sentence: The resident is assumed to reside adjacent to the river.

EPA staff recommendation: The residential scenario should be evaluated qualitatively in the risk assessment. Results from the recent sampling of the recreational fields may be considered in the qualitative evaluation. This scenario will need to be evaluated quantitatively at some point. Since the residential scenario will no longer be evaluated quantitatively in this risk assessment, but rather in the future, this section can be deleted in its entirety.

Comment 118:

Page 97, Section 3.3.4.8, Incidental Ingestion of Sediment, 2nd paragraph.

EPA staff recommendation: Since the residential scenario will no longer be evaluated quantitatively in this risk assessment, but rather in the future, this paragraph can be deleted in its entirety.

Comment 131:

Page 103, Section 3.3.4.8, Sediment and Surface Water Exposure Frequencies, 3rd paragraph.

EPA staff recommendation: Since the residential scenario will no longer be evaluated quantitatively in this risk assessment, but rather in the future, this paragraph can be deleted in its entirety.

CPG Issue #8

Comment 104:

See response to Comment 105 under CPG Issue #1.

Comment 128:

See response to Comment 128 under CPG Issue #3.

CPG Issue #9

Comment 78:

See response to Comment 78 under CPG Issue #4.

Baseline Ecological Risk Assessment

CPG Issue #10

Comment 8:

EPA July 11, 2011 comment: Until agreement is reached on the definition of reference condition through review and approval of the technical memorandum detailing the approach for developing background and reference conditions, terminology consistent with EPA guidance (1994b, 1997a) should be used. Delete "urban" before "reference" throughout document. This does not imply that EPA has made any decisions regarding the appropriateness of using urban conditions as reference sites, only that EPA would prefer to explore the issue thoroughly using the technical memorandum that is yet to be submitted.

EPA staff recommendation: No change from EPA's 7/11/11 comment. In addition, please change the wording used in Table 2.1 back to what was used in the original RARC submitted in July 2010, and as consistent with the PFD.

CPG Issue #11

Comment 34

Table 2-1 (pp 17-22).

EPA July 11, 2011 comment: The question posed relative to the egg number from estuarine benthic omnivores is not a risk question. This question needs to be revised to read "Is the fecundity of estuarine benthic omnivores (e.g. mummichog) from the LPRSA similar to the fecundity of benthic omnivores from appropriately selected reference sites."

EPA staff recommendation: The CPG may leave the risk question as it is, consistent with the wording in the PFD. However, egg numbers from literature must be presented in the risk assessment to provide context for evaluating the Passaic River numbers.

ATTACHMENT B

EPA Staff Recommended Revisions to Select Comments Disputed by CPG

Human Health Risk Assessment

CPG Issue #1:

Comments 100, 101, and 102:

These comments all relate to Page 90, Section 3.3.4, Paragraph 3: "As stated in USEPA's September 10, 2010 comments, the scenarios and exposure parameter assumptions are intended to capture exposures under a future site condition, when parks and open spaces have been improved and expanded or developed at sites currently under other uses. Such improvements could make people more likely to visit and spend more time along the river. USEPA Region 2 has directed that the same set of scenarios and exposure parameter assumptions be used to assess both current and potential future baseline site risks. As a revitalized and redeveloped riverfront is not the current condition, this approach will lead to overestimates of current exposures. However, as directed by USEPA Region 2, the same scenarios and exposure parameter assumptions are used to account for both current and future site conditions."

EPA staff recommendation: Replace the entire paragraph that is referenced above with:

"In accordance with USEPA Guidance (USEPA 1989b, USEPA 2001c), the scenarios and exposure parameter assumptions are intended to capture exposures under both current and future site conditions. All of the exposure pathways are currently complete. While expected improvements to the river and shoreline will likely increase the number of individuals utilizing the river, the exposure frequency and duration for some individuals already utilizing the river will not likely increase. As such, the use of combined current/future exposure assumptions is appropriate."

Comment [e1]: What guidance is this? RARC lists EPA 2001c as RAGS Part A, Process for Conducting Probabilistic RA, which does not seem relevant to the discussion.

Comment 105:

Page 92, Section 3.3.4.2, last paragraph: "Because the likelihood of swimming in the LPRSA depends on several factors, including access, riverbank type, adjoining land, and waterway uses, it may not be appropriate to include swimming as a potential exposure pathway throughout the river. The applicability of the swimming scenario throughout the LPRSA will be evaluated based on consideration of the above factors, as discussed in Section 3.3.5.

EPA July 11, 2011 comment: Delete and replace with: "In accordance with USEPA guidance (USEPA 1995, 2001d), comprehensive community master plans are a valuable source of information in determining reasonably anticipated future land use. Many municipalities and counties along the Lower Passaic River have published master plans that call for the expansion and improvement of parks and open space along the river that will lead to higher exposure in the future (City of Newark 2010, City of Newark et all 2004, Clarke et al 2004, Clarke et al 1999, Heyer et al 2003, Heyer et al 2002, Borough of Rutherford et al 2007). While the general usage types of the river may remain the same in the future, the usage frequency and number of access locations should increase over time based on these plans. This increased usage is taken into account in the exposure parameters discussed in Section 3.3.5."

EPA staff recommendation: This comment, and Comment 104 (which the CPG disputes under Issues #3 and #8), both relate to Section 3.3.4.2 of the RARC. The following language should be used to replace the language in Section 3.3.4.2, in its entirety:

Section 3.3.4.3 Swimmer

It is assumed that recreational users of the LPRSA may occasionally engage in swimming in the river. Recreational swimmers include children (1 to 6 years), adolescents (7 to 18 years), and adults (>18 years). Given the visible deterrents to swimming along large sections of the river, including the presence of trash and debris and the generally urban setting of the river, the exposure frequency and duration for swimming is assumed to be relatively low, both currently and in the future. To be clear, the number of exposed individuals will likely increase as improvements to the shoreline and river are made, but the exposure frequency and duration for some individuals already engaging in this scenario are not likely to increase. It is assumed that the current/future swimmer may be exposed to COPCs in sediment and surface water while swimming via:

- Direct Contact (incidental ingestion and dermal contact) with near shore river and mudflat surface sediment;
- Direct contact (incidental ingestion and dermal contact) with river surface water; and
- Inhalation of COPCs that may volatilize into outdoor air from exposed mudflat sediment and/or surface water.

Note that swimming is included in New Jersey's designated uses of the freshwater portion of the river from the confluence with Second River to Dundee Dam (RM 8 – 17), where the water has a classification of FW2-NT/SE2, though this stretch of the river does not always meet the standards associated with this classification. While the lower portion of the river is not currently classified as suitable for swimming, New Jersey can change the classification as conditions warrant. The applicability of the swimming scenario throughout the LPRSA will be evaluated as part of the risk assessment, as discussed in Section 3.3.5 of this report.

Comment [e2]: It would be more accurate to state "frequently does not meet".

Comment 130:

Page 102-103, Section 3.3.4.8, "Sediment and Surface Water Exposure Frequencies," 2nd paragraph: "The USEPA Region2-directed sediment and surface water exposure frequencies for each receptor scenario are summarized in Table 3-5. The exposure frequencies reflect an improved and more attractive LPRSA where recreational activities involving contact with water are common (e.g., 259 days/year surface water exposure for the adult boater, 39 days/year sediment exposure for the adult swimmer). Since these frequencies do not represent current site conditions, their use will lead to overestimates of potential risks."

EPA July 11, 2011 comment: Delete and replace with:

> Sediment and surface water exposure frequencies for each receptor scenario are summarized in Table 3-5. The exposure frequencies for the angler, swimmer, wader, and boater reflect both current conditions on the river, as well as future conditions after shoreline improvements laid out in municipal master plans are carried out. Adult anglers, swimmers, and waders are assumed to fish, swim or wade in locations where they would contact sediment and surface water once a week during the summer months (13 weeks/year), or 13 days per year, for the RME scenario, and once every two weeks, or 7 days per year, for the CTE scenario. Adolescent anglers, swimmers, and waders are assumed to be exposed to sediment and surface water 3 days per week during the summer months, or 39 and 20 days per year respectively for the RME

and CTE scenarios. Anglers may catch fish on more days than is assumed here, but are not expected to contact sediment and surface water every day that they fish.

The surface water and sediment exposure frequency for the older child boater who canoes or kayaks is assumed to be equal to other recreational scenarios like swimming or wading, and is therefore assumed to occur 13 days/year for the RME scenario and 7 days/year for the CTE scenario.

Surface water exposure frequencies for the adult and teenage (14 to 18 years old) boaters are based on information provided by Passaic River boating clubs (PRRA 2010, Nereid Boat Club 2010). The rowing season extends from March through mid-November (37 weeks). Adult boaters row up to 7 days/week, for 1 to 2 hours/day; average frequency is 250 days/year (7 days/week x 37 weeks/year) and the CTE frequency is 111 days/year (3 days/week x 37 weeks/year). For the teenage boaters, the high school rowing season primarily is from late February through the end of May, and sometimes includes rowing minimally in the fall. The high school teams row 5 to 7 days per week for 1 to 2 hours per day. Based on this information, for teenage boaters (14 to 18 years old) the RME frequency is 98 days/year (7 days/week x 14 weeks/year) and the CTE frequency is 70 days/year (5 days/week x 14 weeks/year).

Exposure to sediment for the adult and teenage boaters will occur with a much lower frequency than exposure to surface water. Rowing locations south of Dundee Dam launch from docks, so contact with the riverbank happens when rowers flip out of the boat and need to wade in to get back in. It is, therefore, assumed that sediment contact occurs once a month for the RME scenario and once every two months for the CTE scenario. Accounting for the length of rowing season (37 weeks for adults and 14 weeks for teenage boaters), the adult sediment exposure frequency is 9 days/year for RME and 4 days/year for CTE; the teenage boater exposure frequency is 4 days/year from RME and 2 days/year for CTE."

EPA staff recommendation: No change from July 11, 2011 comment letter, except to add the following sentence after the second sentence of EPA's recommended language:

"To be clear, the number of exposed individuals will likely increase as improvements to the shoreline and river are made, but the exposure frequency and duration for some individuals already engaging in these scenarios are not likely to increase."

[Note: EPA agrees that if the risk assessment shows that the swimmer scenario is driving the risk, we will revisit our approach to this aspect of the assessment.]

CPG Issue #2

Comment 11:

Page 2, Section 1.1, 1st paragraph, as submitted in February 2011 RARC : "The LPRSA was increasingly urbanized for more than two centuries; it has served as the receiving environment for industrial and municipal waste discharges since the nineteenth century."

EPA July 11, 2011 comment: Add after that line at the end of the paragraph: "However, it is now increasingly used for recreational activities such as boating, fishing, and crabbing as parks and boat

ramps are actively being restored or newly established (site-specific information provided by Passaic River Rowing Association 2010; Nereid Boat Club 2010; City of Newark 2010).

EPA staff recommendation: No change from the July 11, 2011 comment letter, except to remove "crabbing" from the list of activities.

Comment 83:

Page 69, Section 3.3.1.1, 2nd paragraph: "The lower 6 miles are predominantly commercial and industrial with little public access."

EPA July 11, 2011 comment: Delete and replace with the following: "Adjacent land use is predominantly industrial in the lower river miles (near Newark Bay) and transitions to commercial, residential and recreational near RM4. Land use is increasingly residential and recreational above RM 8."

EPA staff recommendation: Delete and replace with the following:

"Adjacent land use is predominantly industrial in the lower river miles (near Newark Bay) and starts to include more commercial, residential, and recreational uses around RM 4, with the locations of Riverbank and Minish Parks."

Comment 84:

EPA Comment in July 11, 2011 letter: Add "Potential Access to Shore" icons at Pathmark Parking Lot, RM 6.5 eastern bank; at RM 5.0, west bank (across street from NJPAC); at RM 4.0, south bank (across Raymond Blvd. from Riverbank Park).

EPA staff recommendation: Add "Potential Access to Shore" icons at Pathmark Parking Lot, RM 6.5 eastern bank and at RM 4.0, south bank (across Raymond Blvd. from Riverbank Park). It is not necessary to place an icon at RM 5.0, though we do have anecdotal evidence that people do go near the water there.

Comment 86:

Page 80, Section 3.3.1.1., "Lower River Segment," 1st sentence: "The Lower River Segment (preliminarily defined as RM 0 to RM 6 based on salinity) is characterized as predominantly industrial/commercial in nature, with very little public access to the shoreline."

EPA July 11, 2011 comment: Rephrase as follows: "The Lower River Segment (preliminarily defined as RM 0 to RM 6 based on salinity) is characterized as predominantly industrial in the lower river miles (near Newark Bay) and transitions to commercial, residential and recreational near RM 4."

EPA staff recommendation: Rephrase as follows:

"The Lower River Segment (preliminarily defined as RM 0 to RM 6 based on salinity) is characterized as predominantly industrial in the lower river miles (near Newark Bay) and starts to become more commercial, residential, and recreational near RM 4."

Comment [e3]: This new phrasing ("starts to become more") also needs to be made in Section 1.1, 1st paragraph, 3rd sentence (Comment #10).

Comment 87:

Page 80, Section 3.3.1.1, "Lower River Segment": "The shoreline along this stretch of the river consists of active or abandoned industrial areas."

EPA July 11, 2011 comment: Delete and replace with "The shoreline along this stretch of the river consists of active or abandoned industrial areas up to RM4, but then transitions to thin strips of park land abutting the river as land use becomes more commercial and residential."

EPA staff recommendation: Delete and replace with:

"The shoreline along this stretch of river consists mainly of active or abandoned industrial areas up to RM 4, but then starts to include more thin strips of park land abutting the river as land use starts to become more commercial, residential, and recreational."

Comment 92:

Page 81, Section 3.3.1.1., "Upper River Segment": "The Upper River Segment (preliminarily defined as RM 10 to the Dundee Dam) transitions, with increasing distance upriver, from a mixture of industrial, commercial and some residential areas and public parks to more residential areas, compared with other sections of the river."

EPA July 11, 2011 comment: Delete sentence and replace with "The Upper River Segment (preliminarily defined as RM10 to the Dundee Dam) is the most residential and recreational segment of the river."

EPA staff recommendation: The CPG may add EPA's sentence (without the parenthetical) after the CPG sentence, rather than delete the CPG sentence and replace it with EPA's sentence.

CPG Issue #3

Comment 77:

Page 64, Section 3.3, 2nd paragraph, 1st sentence: "The LPRSA is a large and complex sediment site, and current site conditions reflect its long industrial history and urban setting."

EPA July 11, 2011 comment: Insert at the end of the sentence the following clause: ", although in the future, most of the river is increasingly expected to be used for recreational activities."

EPA staff recommendation: Add modified clause at the end of the sentence:

", although in the future, ~~large sections of~~ the river ~~are~~ is expected to be used ~~increasingly~~ to a greater extent for recreational activities."

Comment [e4]: Phrasing is awkward – suggest alternate language shown in track changes.

Comment 104:

Page 91, Section 3.3.4.2, 1st paragraph: "It is assumed that recreational users of the LPRSA may occasionally engage in swimming in the river. Recreational swimmers include children (1 to 6 years), adolescents (7 to 18 years), adults (>18 years). Given the visible presence of shoreline and floating debris and trash, the presence of pathogenic contamination, and the urban setting of the river, including lack of public beaches, it is anticipated that swimming now and in the foreseeable future will be limited. However, based on EPA's directive, it is assumed that both the current and future swimmer will be exposed to COPCs in sediment and surface water while swimming in the river via:.."

EPA July 11, 2011 comment: Delete and replace with the following: "Individuals of all ages may visit the Passaic River to swim. Swimming is included in New Jersey's designated use of the freshwater portion of the river from the confluence with Second River to Dundee Dam (RM 8-17), where the water has a classification of FW2-NT/SE2. Swimming under current conditions may be limited by the visible presence of shoreline and floating debris, and trash. However, once the parks that are already under construction are completed, and when other recreational improvements in municipal master plans are undertaken, future conditions are expected to provide greater access to and be more conducive to swimming. Therefore, it is assumed that the current and future swimmer will be exposed to COPCs through contact with sediment while entering and leaving the river, and while swimming. Adult (>18 years), adolescent (7 to 18 years old) and young child (1 to 6 years old) swimmers are assumed to be exposed to sediment and surface water via: ..."

EPA staff recommendation: See response to Comment 105 under CPG Issue #1. Use the language provided in that response to replace Section 3.3.4.2 in its entirety.

Comment 105:

See response for Comment 105 under CPG Issue #1.

Comment 128:

Page 101, Section 3.3.4.8, "Surface Water Exposure Time," 1st paragraph: "Given the highly developed and urbanized nature of the LPRSA, including the pathogenic contamination throughout the study area, frequent and extended periods of swimming, wading, or other activities involving intensive contact with surface water are not expected to occur under current or foreseeable future uses. Thus, the USEPA Region 20directed exposure times and frequencies for the receptor scenarios involving contact with surface water are likely to overestimate exposures in the LPRSA. The use of USEPA's national default swimming exposure time of 2.6 hours per event does not reflect site-specific conditions and was not intended for a water body with compromised water quality and no designated swimming areas. However, at the direction of USEPA, this default assumption is used in the baseline HHRA for the LPRSA. The USEPA-directed surface water exposure times for each receptor scenario are summarized in Table 3-4."

EPA July 11, 2011 comment: Delete and replace with the following, "The NJAC Surface Water Quality Standards classification for the Passaic River from RM 0 to 8 includes secondary contact recreation (E.G, boating and fishing), and from RM8 to 17 includes primary contact recreation (e.g., swimming and wading), among other uses. A number of boating and sculling clubs already make frequent use of the river (Passaic River Rowing Association 2010, Nereid Boat Club 2010) and improvements are being made

to boat ramps throughout the 17 miles (City of Newark 2010). Swimming under current conditions may be limited by the visible presence of shoreline and floating debris and trash. However, once the parks that are already under construction are completed, and when other recreational improvements planned in municipal master plans are undertaken, future conditions are expected to provide greater access to and be more conducive to swimming[1]. Therefore, exposure times and frequencies are designed for both current and future river users who will be exposed to COPCs in sediment and surface water, as summarized in Table 3-4."

Comment [e5]: Does this plan cover boat ramps throughout the LPRSA, or are additional references appropriate?

Comment [e6]: Suggest going with same text proposed by EPA for section 3.3.4.3 Swimmer.

"Given the visible deterrents to swimming along large sections of the river, including the presence of trash and debris and the generally urban setting of the river..."

EPA staff recommendation: Delete last sentence of EPA proposed language ("Therefore...") and replace with:

"The exposure times and frequencies summarized in Table 3-4 are designed to reflect both current and future river users. While the number of people utilizing the river in such a way as to be exposed to surface water will likely increase as improvements to the river are made, the exposure times and frequencies for particular individuals already utilizing the river in these ways are not expected to increase."

CPG Issue #4

Comment 7:

EPA July 11, 2011 comment: Since the entire RARC is subject to USEPA approval, the terms "directed for use by USEPA Region 2" or "USEPA Region 2-directed" are unnecessary specifications and should be deleted. Specific comments below provide many instances.

EPA staff recommendation: In general, no change from EPA's 7/11/11 comment, except as noted below.

Comment 78:

Page 64, Section 3.3, 2nd paragraph, last sentence: While use of some default or surrogate assumptions will be necessary in the remedial decision-making process, USEPA guidance documents stress the importance of using data that represent the characteristics of the local population(s) and site when possible and appropriate (USEPA 1989a, b, 1991a, 1997b, 1998a, 2000a).

EPA July 11, 2011 comment: delete and replace with "However, USEPA guidance (USEPA 1991a) also allows the use of default values developed by USEPA when there is a lack of site-specific data or consensus on which parameter value to choose, given a range of possibilities."

EPA staff recommendation: The CPG may add EPA's language after the CPG's last sentence, rather than delete it.

Comment 95:

Page 82, Section 3.3.2, 1st paragraph, 5th sentence: At the direction of USEPA Region 2, an additional receptor (Worker) not identified in the PFD has been included as a potential receptor.

[1] The national average for time spent swimming is 2.6 hours/day.

EPA July 11, 2011 comment: Delete "At the direction of USEPA Region 2,"

EPA staff recommendation: EPA agrees to remove this comment; the referenced language may remain in the plan.

Comment 99:

Page 90, Section 3.3.4, 2nd paragraph: The values to be used for each of the RME and CTE exposure parameters are those that USEPA Region 2 directed CPG to use, were issued as directives on November 5, 2010, and are representative of USEPA default values. These values are presented in this Revised RARC Plan. On September 10, 2010, USEPA Region 2 provided comments on CPG's Draft RARC Plan. USEPA's comments included specific scenarios and exposure parameter values to be used in the baseline HHRA. The exposure pathways, receptors, and parameter values were provided in tabular form following *Risk Assessment Guidance for Superfund (RAGS) Part D* format (USEPA 2001c). These tabulated scenarios and parameter values are included as Appendix C of this Plan.

EPA July 11, 2011 comment: Delete 2nd paragraph (unnecessary explanation).

EPA staff recommendation: CPG may leave this paragraph in, rewording the beginning as follows:

"The values to be used for each of the RME and CTE exposure parameters are generally those that USEPA Region 2 directed CPG to use. All of EPA's directions are consistent with EPA guidance, practices, and policies for conducting risk assessments. These values are presented ...."

Comment [e7]: Recommend that "generally" be struck from this sentence, as all of the exposure parameters are directed by EPA for CPG to use.

CPG Issue #5

Comment 110 (combining 110b and 110d):

Page 94, Section 3.3.4.7: The ingestion rate is the amount of fish that an individual consumes on a daily basis based on averaging the reported consumption rate in one year over 365 days (i.e., an annualized rate). As directed by USEPA Region 2 and listed in Appendix C, the USEPA's default fish ingestion rates for recreational freshwater anglers cited in USEPA's Exposure Factors Handbook (USEPA 1997b) will be used. These rates are based on mail surveys of licensed anglers who pursue sportfishing in Maine, New York (Lake Ontario), and Michigan (Great Lakes), and include both consumers and non-consumers (USEPA 1997b). The fish ingestion rates for the adult, adolescent, and child angler receptors as selected by USEPA Region 2 are as follows:

- *Adult angler fish ingestion rate*: RME of 26 g/day (the 95th percentile in the USEPA's Exposure Factors Handbook), which is equivalent to approximately 40 half-pound meals/year, and CTE of 8 g/day (the recommended mean in the USEPA's Exposure Factors Handbook) (USEPA 1997b)
- *Adolescent angler (ages 7 to 18 years) fish ingestion rate*: RME of 17 g/day and CTE of 5 g/day, based on USEPA's assumption that the intake of the adolescent is approximately two-thirds that of the adult (USEPA 1997b)
- *Child angler (ages 1 to 6 years) fish ingestion rate*: RME of 8 g/day and CTE of 3 g/day, based on USEPA's assumption that the intake of the child is approximately one-third that of the adult (USEPA 1997b)17

EPA July 11, 2011 comment: Delete and replace with, "The ingestion rate is the amount of fish that an individual consumes on a daily basis, based on averaging the reported consumption rate in 1 year over 365 days. Ingestion rates for fish have been annualized and are presented in grams eaten per day (g/day). The ingestion rate assumes the fish are caught while angling from the LPRSA only. It is expected that ingestion of fish from local sources will be the main source of fish consumption for the anglers. For consumption of fish, ingestion rates based on data collected for recreational anglers may obtained from the Exposure Factors Handbook (EFH) (USEPA 1997b), three surveys conducted in New Jersey (Burger 2002, May and Burger 1996, Center for Public Interest Polling and New Jersey Marine Sciences 1993, Burger et al 1998) and one survey conducted in New York (Connelly et al 1992). Only the 1997 EFH, Burger 2002 and Connelly et al 1992 contain enough information to calculate statistical distributions for the ingestion rates. Only the Burger 2002 and Connelly et al 1992 (as analyzed and applied in the externally peer-reviewed Human Health Risk Assessment for the Hudson River in TAMS Consultants 2000) included data from the New York/New Jersey Harbor, which encompasses the tidal portion of the Lower Passaic River (the 1997 EFH data were from surveys of anglers in Michigan, Maine and the Great Lakes). Burger 2002 was from a survey conducted in the Newark Bay Complex. Connelly et al (1992) was a New York Statewide Angler survey, whose data were used to calculate ingestion rates for the peer-reviewed Human Health Risk Assessment for the Hudson River (TAMS Consultants 2000). Therefore, the fish ingestion rate for the Lower Passaic River RME adult angler (44 g/day) is calculated by averaging the high end (approximately 90th percentile) estimates from Burger 2002 (57 g/day) and Connelly et al 1992 (32 g/day). For the CTE value (13 g/day), the average of the mean of 22 g/day from Burger 2002 and the 50th percentile value of 4 g/day from Connelly et al 1992 is used.

A creel angler survey was conducted in the Lower Passaic River, as reported in Ray et al 2007. The work plan for this survey was submitted to USEPA for review, but not approved; therefore, results from the survey cannot be used in this risk assessment. However, it is noted that the fish ingestion rates for the RME adult based on data from Burger 2002 (57 g/day) and Connelly et al 1992 (32 g/day) are consistent with the ingestion rate calculated from data reported in Ray et al 2007 (28 g/day). Ray et al 2007 reported that only 7 anglers of those surveyed reported consuming fish. The small number of consumers limits statistical evaluation of the consumption rate to the maximum reported consumption rate of 28 g/day (USEPA 1992d)."

Comment [eB]: As discussed at 12/1 meeting, the maximum consumption rate from Ray et al. is 23.95 g/day (Table 3 of Ray et al. 2007) not 28 g/day. The 28 g/day rate listed on page 525 of Ray et al. 2007 is the result of a sensitivity analysis, although this is not clearly spelled out in the text of the article.

As also discussed at the 12/1 meeting, the maximum is not the correct statistic for comparison. For a correct comparison with Burger's 57 g/day and Connelly et al's 32 g/day (both 90th percentile values for consuming anglers), a 90th percentile rate for LPR consuming anglers should be used, which is 11.5 g/day.

EPA staff recommendation: No change from language in July 11, 2011 comment letter, except to add the following language after the first sentence, "The following analysis of ingestion rates is based on EPA's Technical Memorandum on Fish and Crab Consumption Rates dated July 25, 2011." The memorandum should also be referenced as an appendix to the report.

Comment 113:

Page 96, Section 3.3.4.7, Crab Ingestion Rate: For crabs, USEPA has directed that consumption rates be based on a 1999 survey of Newark Bay anglers, including crabbers (Burger 2002). Based on the responses of 110 anglers who reported consuming crab, a mean crab ingestion rate was derived by multiplying the number of crab meals eaten per month by the number of crabs eaten at each meal by the number of months per year that anglers go crabbing (and presumably eat their catch), assuming the average serving size from one crab is 70 g. Based on the Burger analysis, USEPA Region 2 has determined the following crab consumption rates:

- *Adult receptor crab ingestion rate*: RME of 23 g/day and CTE of 16 g/day

- *Adolescent receptor (ages 7 to 18 years) crab ingestion rate*: RME of 15 g/day and CTE of 11 g/day, based on the assumption that the intake for the adolescent is approximately two-thirds that of the adult (USEPA 1997b)
- *Child receptor (ages 1 to 6 years) crab ingestion rate*: RME of 8 g/day and CTE of 5 g/day, based on the assumption that the intake for the child is approximately one-third that of the adult (USEPA 1997b)

EPA July 11, 2011 comment: Delete and replace with, "The ingestion rate is the amount of crab that an individual consumes on a daily basis based on averaging the reported consumption rate in 1 year over 365 days. Ingestion rates for crab have been annualized and are presented in grams eaten per day (g/day). The ingestion rate assumes the crabs are caught while angling from the LPRSA only. It is expected that the main source of crab for ingestion is from the LPRSA.

Two studies provided data on crab consumption (Burger 2002; Burger et al 1998). Consistent with the recommendations in RAGS Part A, a crab consumption rate was calculated at the 90th percentile, since the 95th percentile was not available. In Burger (2002), for people who only crabbed, approximately 4% of all respondents (6.3% of "consumers only") ate more than 4,200 g/month. Similarly, about 15% of all respondents (23% of "consumers only") ate more than 1,400 g/month. Excluding the non-consumers, the 90th percentile crab ingestion rate for crab consumers is estimated to be 3,590 g/month, or 32 g/day (assuming crabs are consumed 3.3 months of the year, per Table 2 of the paper). The mean crab ingestion rate is 16 g/day, based on data provided in Table 2 of the Burger (2002) paper (assuming that 5,760 g/year is consumed during 3.3 months of the year). This mean crab ingestion rate is consistent with the mean value of 16.6 g/day from Barnegat Bay (Burger et al. 1998). Burger et al. 1998 did not report enough information to support statistical calculations of a 95th percentile ingestion rate. Other studies in this area reported crab consumption but an ingestion rate could not be calculated based on the information presented (Burger et al. 1999 and Kirk-Pflugh et al. 1999).

The 90th percentile crab ingestion rate of 32 g/day is selected as the adult RME ingestion rate and the mean crab ingestion rate of 16 g/day is selected as the adult CTE rate. Ingestion rates for the child and adolescent receptors are estimated assuming rates 1/3 and 2/3 those of the adult ingestion rates, respectively, as is assumed for fish ingestion."

EPA staff recommendation: No change from language in July 11, 2011 comment letter, except to add the following language after the first sentence, "The following analysis of ingestion rates is based on EPA's Technical Memorandum on Fish and Crab Consumption Rates dated July 25, 2011." The memorandum should also be referenced as an appendix to the report.

CPG Issue #6

Comments 112, 114, and 135:

[The CPG has agreed to send EPA studies relevant to its request to discuss CTE scenarios with EPA. EPA staff will review the studies to determine whether we think there is a basis to engage in those discussions – and therefore withdraw this issue from the dispute resolution process.]

Comment 115:

Page 97, Section 3.3.4.7, Cooking Loss for Crab: As directed by USEPA Region 2, for both the RME and CTE crab consumption scenarios, a preparation and cooking loss factor of zero percent will be used for all contaminants. This is based on USEPA Region 2's assumption that anglers consume the cooking water every time they eat crab. The assumption of no cooking loss is a very conservative assumption, particularly for the CTE scenario. Based on NJDEP survey data, most individuals who catch and consume crabs do not eat the hepatopancreas, and many remove it prior to cooking (Macro 2007, 2008; NJDEP 2002; ORC Macro 2006). Even if the hepatopancreas is not removed prior to cooking, contaminants in the hepatopancreas that may be released during cooking do not result in higher concentrations in the muscle tissue (Zabik et al. 1992). Removal of the hepatopancreas prior to cooking and discarding the cooking water is also recommended by NJDEP's crab consumption advisory (NJDEP and NJDHSS 2010). USEPA Region 2 has agreed to review the appropriateness of assuming no cooking loss for the CTE crab consumption scenario; the values to be used in the baseline HHRA may be amended pending the outcome of USEPA Region 2's review.

EPA July 11, 2011 comment: Delete and replace with, "A cooking loss factor accounts for the amount of contaminant in tissue that is lost during the cooking process and not consumed by the receptor. Blue crabs are most often cooked whole by boiling or steaming (Sea Grant Marine Advisory Program 2006). Exposure to the contaminant depends not only of the specific part of the crab consumed, but also on the method of cooking. NJDEP (2010) reports that no specific cooking method can be relied on to reduce the chemical contaminant levels in blue crabs. Because the crab is cooked whole, even if the consumer does not eat the hepatopancreas, exposure to the chemical contaminant may still occur if the crab is cooked before the hepatopancreas is removed and if the liquid used to boil the crab is used in juices, sauces, bisques, or soups. It should be assumed that the cooking liquid is consumed along with the crabmeat. Therefore, cooking loss for crabs is assumed to be 0 percent for all contaminants under the RME and CTE scenarios, because data are not currently available from EPA or published literature to support any type of reduction in concentration under this type of exposure scenario. A study published by Zabik et al. (1992), entitled "Effect of Preparation and Cooking on Contaminant Distributions in Crustaceans: PCBs in Blue Crab," was reviewed. The study showed that boiling or steaming reduced PCB concentrations by greater than 20 percent in tissue, and that the cooking water contained about 80 percent of the PCBs that were lost from the crabs (the study author was contacted to confirm these results). Thus, most of the PCBs lost from the crabs could still be consumed if the cooking water is used to prepare soups, sauces, pasta, etc. Potential cooking loss assuming discarding the cooking water may be discussed in the uncertainty section of the risk assessment, but a cooking loss of 0 percent should still be assumed for the RME and CTE scenarios in the risk assessment."

EPA staff recommendation: Since EPA will allow the use of a cooking loss of 20% for PCBs under the CTE scenario, please use the following revised language:

"A cooking loss factor accounts for the amount of contaminant in tissue that is lost during the cooking process and not consumed by the receptor. Blue crabs are most often cooked whole by boiling or steaming (Sea Grant Marine Advisory Program 2006). Exposure to the contaminant depends not only of the specific part of the crab consumed, but also on the method of cooking. NJDEP (2010) reports that no specific cooking method can be relied on to reduce the chemical contaminant levels in blue crabs. Because the crab is cooked whole, even if the consumer does not eat the hepatopancreas, exposure to the chemical contaminant may still occur if the crab is cooked before the hepatopancreas is removed and if the liquid used to boil the crab is used in juices, sauces, bisques, or soups. It should be assumed

that the cooking liquid is consumed along with the crabmeat. Therefore, cooking loss for crabs is assumed to be 0 percent for all contaminants under the RME, because data are not currently available from EPA or published literature to support any type of reduction in concentration under this type of exposure scenario. A study published by Zabik et al. (1992), entitled "Effect of Preparation and Cooking on Contaminant Distributions in Crustaceans: PCBs in Blue Crab," was reviewed. The study showed that boiling or steaming reduced PCB concentrations by greater than 20 percent in tissue, and that the cooking water contained about 80 percent of the PCBs that were lost from the crabs (the study author was contacted to confirm these results). Thus, most of the PCBs lost from the crabs could still be consumed if the cooking water is used to prepare soups, sauces, pasta, etc. Potential cooking loss assuming discarding the cooking water may be discussed in the uncertainty section of the risk assessment, but a cooking loss of 0 percent should still be assumed for the RME scenario. A PCB cooking loss of 20% based on Zabik et al. should be assumed for the CTE scenario in the risk assessment."

Comment [e9]: Other lipophilic chemicals present in the crab tissue are expected to behave in a similar fashion. Why is the CTE cooking loss factor limited to PCBs?

CPG Issue # 7

Comment 109:

Page 93, Section 3.3.4.5, 1st sentence: The resident is assumed to reside adjacent to the river.

EPA staff recommendation: The residential scenario should be evaluated qualitatively in the risk assessment. Results from the recent sampling of the recreational fields may be considered in the qualitative evaluation. This scenario will need to be evaluated quantitatively at some point. Since the residential scenario will no longer be evaluated quantitatively in this risk assessment, but rather in the future, this section can be deleted in its entirety.

Comment 118:

Page 97, Section 3.3.4.8, Incidental Ingestion of Sediment, 2nd paragraph.

EPA staff recommendation: Since the residential scenario will no longer be evaluated quantitatively in this risk assessment, but rather in the future, this paragraph can be deleted in its entirety.

Comment 131:

Page 103, Section 3.3.4.8, Sediment and Surface Water Exposure Frequencies, 3rd paragraph.

EPA staff recommendation: Since the residential scenario will no longer be evaluated quantitatively in this risk assessment, but rather in the future, this paragraph can be deleted in its entirety.

CPG Issue #8

Comment 104:

See response to Comment 105 under CPG Issue #1.

Comment 128:

See response to Comment 128 under CPG Issue #3.

CPG Issue #9

Comment 78:

See response to Comment 78 under CPG Issue #4.

Baseline Ecological Risk Assessment

CPG Issue #10

Comment 8:

EPA July 11, 2011 comment: Until agreement is reached on the definition of reference condition through review and approval of the technical memorandum detailing the approach for developing background and reference conditions, terminology consistent with EPA guidance (1994b, 1997a) should be used. Delete "urban" before "reference" throughout document. This does not imply that EPA has made any decisions regarding the appropriateness of using urban conditions as reference sites, only that EPA would prefer to explore the issue thoroughly using the technical memorandum that is yet to be submitted.

EPA staff recommendation: No change from EPA's 7/11/11 comment. In addition, please change the wording used in Table 2.1 back to what was used in the original RARC submitted in July 2010, and as consistent with the PFD.

CPG Issue #11

Comment 34

Table 2-1 (pp 17-22).

EPA July 11, 2011 comment: The question posed relative to the egg number from estuarine benthic omnivores is not a risk question. This question needs to be revised to read "Is the fecundity of estuarine benthic omnivores (e.g. mummichog) from the LPRSA similar to the fecundity of benthic omnivores from appropriately selected reference sites."

EPA staff recommendation: The CPG may leave the risk question as it is, consistent with the wording in the PFD. However, egg numbers from literature must be presented in the risk assessment to provide context for evaluating the Passaic River numbers.

ATTACHMENT C

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December 15, 2011

Sarah Flanagan, Esquire
USEPA Region 2
290 Broadway
New York, New York 10002

Re: Risk Assessment and Risk Characterization (RARC) Work Plan Dispute Resolution - Lower Passaic River Study Area (LPRSA) Remedial Investigation/Feasibility Study (RI/FS) - CERCLA Docket No. 02-2007-2009

Dear Ms. Flanagan:

I am writing on behalf of the Lower Passaic River Cooperating Parties Group (CPG) in continuance of Region 2 and CPG's ongoing dispute resolution process on the Risk Assessment and Risk Characterization (RARC) Plan. As requested by Region 2, this letter summarizes the CPG's current understanding of, and position on, each of the eleven dispute resolution issues identified in CPG's August 12, 2011 letter to Region 2 and discussed at our December 1, 2011 meeting. As a follow-up to the December 1, 2011 meeting, on December 8, the CPG provided comments on Region 2's document entitled, "*EPA Staff Recommended Revisions to Select Comments Disputed by CPG*" (dated December 5, 2011) ("Recommended Revisions"). CPG's comments included recommended editorial revisions to improve clarity and consistency, questions on two references cited, and identification of an issue that was raised during the December 1 meeting, but not adequately addressed in Region 2's Recommended Revisions.

The CPG does not agree with the proposed resolutions detailed in Region 2's Recommended Revisions for RARC HHRA Issues 2, 3, 4, 8, and 9; however, in the interest of moving forward, the CPG has decided to work within the confines that Region 2 has established for these five issues, but reserves its right to independently document, through the use of transmittal and cover letters, as well other correspondence, its continuing differences with EPA on these five issues. The CPG's understanding of the status on the other six issues is summarized below:

- *HHRA Issue 6 – Dialogue on Cooking Loss.* The CPG has provided EPA with relevant technical references and a synopsis of the issue, and is awaiting Region's 2 feedback regarding engaging in a technical dialogue on this topic outside of the dispute resolution process.
- *HHRA Issue 7 - Residential Sediment Exposure.* The CPG accepts Region 2's decision to evaluate the residential scenario qualitatively in the HHRA. The CPG understands that Region 2 is internally deliberating the approach for evaluating potential residential exposures at some point in the future; as such, the CPG requests that EPA keep the CPG informed and involved in this process.
- *ERA Issue 10 – Urban Background Definition.* The CPG wishes to discuss this issue, specifically to point out that the term "urban" was used in the Region 2-approved Problem Formulation Document (PFD) and therefore, Region 2's directive to strike the

word "urban" from the entirety of the RARC is inconsistent as well as unfounded. "Urban" should be used in a manner consistent with the approved PFD.

- *ERA Issue 11 – Mummichog Testable Risk Hypothesis.* CPG understands that Region 2 has withdrawn its comment on this issue.

Finally, with respect to HHRA Issue 1 (Combined/Single Exposure Scenarios) and HHRA Issue 5 (Fish and Crab Ingestion Rates and Fraction Ingested of 1), the CPG does not agree that Region 2's Recommended Revisions satisfactorily address the core of CPG's dispute, and respectfully requests that these issues be the focus of discussions at the next EPA-CPG dispute resolution meeting.

The CPG recognizes EPA's responsibility to ensure protectiveness in the face of scientific uncertainty and how that responsibility is carried out in risk assessments. The CPG appreciates EPA's desire for, and mandate to apply, appropriate conservatism to ensure health-protectiveness. However, the CPG strongly believes that Region 2 has developed and directed a level of conservatism that is inconsistent with the concept of Reasonable Maximum Exposure (RME), and is unnecessary and inappropriate for developing exposure parameters and scenarios for the baseline human health risk assessment (HHRA) of the LPRSA. Moreover, the net effect of these multiple compounding conservatisms directed by Region 2 will be estimates of exposure that go far beyond the intent of the RME as laid out in the Agency's own guidance and policy (USEPA 1989, 1992, 2001, 2004).

The HHRA would be more informative and better fulfill its purpose as a remedial decision-making tool if the recognized variability and uncertainty inherent in human exposures at the LPRSA were explicitly acknowledged in the RARC and considered in the risk assessment process. Region 2's prescriptive approach of allowing only one current/future exposure scenario defined by one set of unrealistic and largely unsupported RME (and Central Tendency Exposure (CTE)) assumptions is inappropriate and imprudent, particularly given the complexity of the LPRSA, the substantial scope of the Remedial Investigation and Feasibility Study (RI/FS), the level of sophistication and site-specificity invested in other aspects of the project, and the anticipated significant remedial costs. As stated in the Agency's *Policy for Risk Characterization* memorandum (USEPA, 1995):

> ". . . we must fully, openly, and clearly characterize risks. In doing so, we will disclose the scientific analyses, uncertainties, assumptions, and science policies which underlie our decisions. . . There is value in sharing with others the complexities and challenges we face in making decisions in the face of uncertainty."

The path that EPA is choosing for the HHRA fails to adequately separate the baseline risk assessment and risk management processes. It is CPG's position that the process is being reversed for the LPRSA, with risk management decisions preceding the baseline assessment results. This approach is contrary to the Agency's *Guidance on Risk Characterization for Risk Managers and Risk Assessors* (USEPA, 1992), which clearly defines expectations for risk assessments and the need to avoid a "short-hand" approach that does not fully convey the range of information considered and used in developing the assessment, and necessary for informed decision-making. The approach also contradicts the current administrations and

EPA's current initiatives to incorporate sound science throughout its regulatory programs in order to provide "the foundation for credible decision-making." Region 2's desire for simplicity and internal consistency (i.e., regional precedence) and its resistance to applying sound scientific principles to key aspects of the risk assessment process, including the derivation of site-specific fish and crab consumption rates, will result in an outcome that has little value to the CPG, stakeholders, and ultimately, EPA.

Summary of CPG Position on Dispute Resolution Issues

1. ***Directive to evaluate only one set of exposure assumptions representing a hypothetical future scenario (Comments 100, 101, 102, 105, 130)***

   CPG Position: The CPG does not agree with Region 2's decision or rationale to evaluate only one set of scenarios to represent exposures under both current and future site conditions. While Region 2's recommended revisions to the RARC text reconcile some of the internal contradictions contained in Region 2's original comments providing its directive text changes, the fundamental issue of basing current exposure scenarios on an overly conservative and unrealistic vision of the river remains. Region 2's offer to revisit the swimming scenario assumptions if the pathway ends up driving site risk demonstrates that Region 2 recognizes that the directed assumptions (e.g., adolescents ages 7 to 12 swim 39 days per year for 2.6 hours per event for 12 years) are unrealistic and unsupported for the LPRSA under current, or for that matter, future site conditions.

   By providing directive values for one site condition that is intended to represent both the current and future conditions at the LPRSA, the ability to distinguish between risks for these two time periods and provide a realistic estimate of current site risk, is lost. As discussed at the December 1 meeting, the risk assessment process is intended to consider a range of alternative scenarios, both current and future, to allow EPA to develop an informed risk management decision. This type of an approach is being followed in the Baseline Ecological Risk Assessment (BERA) for the LPRSA. At a minimum, the alternatives to the various exposure parameters, and their associated variability and uncertainty, should be fully discussed in the RARC Plan and the HHRA itself. Under its current construct, the RARC provides for human health risk estimates that will be driven by a limited, unrealistic, and in some instances non-site specific (e.g., use of a national default exposure time of 2.6 hours for each swimming event[1]), set of assumptions and provide minimal context regarding the full range of uncertainty.

2. ***Stipulated language, as well as re-wording or deletion of approved Problem Formulation Document language, that inaccurately portrays current conditions and land uses (Comments 4, 11, 83, 84, 86, 87, 89, 92)***

   CPG Position: CPG accepts Region 2's December 5 recommended revisions to the above comments, with the recommended clarifications identified in CPG's December 7 comments

[1] As documented in the CPG's February 10, 2011 Position Paper (Table A-3 of Appendix A), swimming exposure times (ET) that are less than 2.6 hours and better reflect site characteristics have been used in HHRAs both inside and outside of Region 2, including Aberjona River in Massachusetts, Grasse River and Peconic River in New York, Lower Fox River in Wisconsin, and Calcasieu Estuary in Louisiana.

on revised text for comment 86 to ensure consistency throughout the RARC. The CPG reserves its rights to continue to document its disagreement with Region 2 on this issue.

3. ***Stipulated language regarding the impact of future land use changes on future exposures (Comments 4, 77, 81, 91, 94, 104, 105, 128)***

   CPG Position: CPG accepts Region 2's December 5 recommended revisions to the above comments, with the recommended clarifications identified in CPG's December 7 comments on revised text for comments 77 and 128 to ensure consistency throughout the RARC. The CPG reserves its rights to continue to document its disagreement with Region 2 on this issue.

4. ***Directive to remove all statements attributing EPA as source of directed exposure scenarios and parameter assumptions as well as language that provided the technical basis for alternative positions (Comments 7, 78, 95, 99, and several specific comments)***

   CPG Position: CPG accepts Region 2's December 5 recommended revisions to the above comments, with the recommended clarification identified in CPG's December 7 comments on revised text for comment 99 to ensure accuracy.

5. ***Fish and crab consumption rates and assumption of FI of 1 (Comments 1110b, 110d, 111, 113 and USEPA July 25, 2011 Tech Memo)***

   CPG Position: CPG does not accept Region 2's recommended revisions to the above comments. CPG has multiple concerns and significant issues with Region 2's analysis and description of the fish and crab ingestion rates and fraction ingested assumption of 1. CPG's disagreements with Region 2's fish and crab consumption rates and fraction ingested (FI) value, including EPA's July 25 Technical Memorandum on this topic, were documented in its September 6, 2011 Position Paper. These differences were not adequately discussed during the December 1 meeting and EPA's position is wholly inadequate and not technically supported by its July 25, 2011 Technical Memorandum (Tech Memo) which has serious and significant technical flaws. Key concerns are summarized here as they relate to the discussion of this topic in Region 2's December 5 Recommended Revisions document; however, all of the comments provided in CPG's review and critique of EPA's July 25 Tech Memo should be considered in the analysis of this dispute. One of the CPG's primary concerns regarding Region 2's RARC text summarizing the basis of the selected consumption rates is its lack of acknowledgement of the variability and uncertainty in the studies used and the range of plausible rates. Given the importance of the fish and crab consumption pathways, the limited and inaccurate summary provided in the Recommended Revisions document is completely inadequate.

   Key concerns on the specific text provided in the Recommended Revisions are as follows:

   > *EPA July 11, 2011 Comment 110, first paragraph, third and fourth sentences*: "For consumption of fish, ingestion rates based on data collected for recreational anglers may [sic] obtained from the Exposure Factors Handbook (EFH) (USEPA 1997b),

three surveys conducted in New Jersey (Burger 2002, May and Burger 1996, Center for Public Interest Polling and New Jersey Marine Sciences 1993, Burger et al 1998) and one survey conducted in New York (Connelly et al 1992). Only the 1997 EFH, Burger 2002 and Connelly et al 1992 contain enough information to calculate statistical distributions for the ingestion rates. Only the Burger 2002 and Connelly et al 1992 (as analyzed and applied in the externally peer-reviewed Human Health Risk Assessment for the Hudson River in TAMS Consultants 2000) included data from the New York/New Jersey Harbor."

There are multiple issues and inaccuracies in these statements, including:

1. EFH (1997) is now out of date;
2. The household fish consumption survey conducted by the Center for Public Interest Polling and New Jersey Marine Sciences (1993) is a statewide survey that is not relevant to developing long-term ingestion rates for recreational anglers at the LPRSA ;
3. Connelly et al. (1996) should be included as one of the New York surveys given that it was designed to collect long-term fish consumption data and avoid the limitations associated with the Connelly et al. (1992) study;
4. Given that Connelly et al. (1992) was a statewide angler survey, it is misleading to say it is representative of fishing in the NY/NJ harbor area, as evidenced by the differing demographics of the angler population in Connelly et al. (1992) and LPRSA anglers; and
5. There is only one site-specific creel/angler survey for the Lower Passaic River. The survey conducted by Tierra Solutions in 2000-01 should be listed, as it provides data sufficient for calculating statistical distributions for ingestion rates (and Region 2 was provided these data in 2002). Preemptive to Region 2's disagreement with the use of, and sanctions against even citing this work, the 2000-01 creel/angler survey was not only favorably peer reviewed by a panel of experts, it won high praise for the design, execution, and precedent-setting thoroughness.

The CPG believes that many of the inaccurate statements stem from the flawed scientific review and analysis process presented in EPA's July 25 Tech Memo. The study selection and review criteria were incomplete, largely irrelevant, and inconsistent with those used by EPA in evaluating studies for their suitability for developing recommended exposure parameter values presented in the EFH.[2] Had Region 2 implemented a more objective and technically defensible set of selection and review criteria, including soundness, applicability and utility to the task at hand, clarity and completeness, variability and uncertainty, and peer review, the inadequacies of the two studies selected by Region 2 to derive consumption

[2] EPA's Exposure Factors Handbook (EFH) 2011 considerations for study selection include: (1) soundness (adequacy of approach and minimal or defined bias); (2) applicability and utility (focus on the exposure factor of interest, representativeness of the population, currency of the information, and adequacy of the data collection period); (3) clarity and completeness (accessibility, reproducibility, and quality assurance); (4) variability and uncertainty (variability in the population and uncertainty in the results); and (5) evaluation and review (level of peer review and number and agreement of studies).

rates would have been apparent. None of these significant issues and limitations are acknowledged or addressed in either the Recommended Revisions or EPA's July 25 Tech Memo.

> *EPA July 11, 2011 comment 110, second paragraph:* "A creel angler survey was conducted in the Lower Passaic River, as reported in Ray et al 2007. The work plan for this survey was submitted to USEPA for review, but not approved; therefore, results from the survey cannot be used in this risk assessment. However, it is noted that the fish ingestion rates for the RME adult based on data from Burger 2002 (57 g/day) and Connelly et al 1992 (32 g/day) are consistent with the ingestion rate calculated from data reported in Ray et al 2007 (28 g/day). Ray et al 2007 reported that only 7 anglers of those surveyed reported consuming fish. The small number of consumers limits statistical evaluation of the consumption rate to the maximum reported consumption rate of 28 g/day (USEPA 1992d)."

The CPG has numerous issues with this paragraph, including:

1. The fact that the 2000-01 Tierra Creel/Angler Survey (CAS) work plan was not approved is a wholly inadequate basis for dismissing results of the only site-specific study for the Lower Passaic River, particularly given that it was peer reviewed, and neither of the two studies selected by Region 2 was performed using an EPA-approved work plan;
2. The maximum consumption rate from Ray et al. (2007) is 23.95 g/day not 28 g/day. The 28 g/day rate listed on page 525 of Ray et al. (2007) is the result of a sensitivity analysis, although this is not clearly spelled out in the text of the article – this point has been made to Region 2 in both the CPG's September 6, 2011 Position Paper and during the December 1 meeting;
3. It is not appropriate to apply EPA's (1992) guidance for calculating exposure point concentrations to the statistical analysis of the CAS survey data. The proper statistical analysis of these data requires use of angler-specific survey weights, as described in Ray et al. (2007) and the CAS work plan; and
4. Region 2 has incorrectly compared the maximum from the Tierra CAS with the 90th percentile rates derived by Region 2 from the Burger (2002) and Connelly et al. (1992) studies, and stated that the rates are "consistent." When comparable statistics are used for comparison, it is readily apparent that the ingestion rates based on Burger (2002) (57 g/day) and Connelly et al. (1992) (32 g/day) are not consistent with the 90th percentile rate for LPR consuming anglers of 11.5 g/day calculated from the Tierra CAS.

> *EPA July 11, 2011 comment 113, second paragraph*: "Two studies provided data on crab consumption (Burger 2002; Burger et al 1998). Consistent with the recommendations in RAGS Part A, a crab consumption rate was calculated at the 90th percentile, since the 95th percentile was not available. In Burger (2002), for people who only crabbed, approximately 4% of all respondents (6.3% of "consumers only") ate more than 4,200 g/month. Similarly, about 15% of all respondents (23% of "consumers only") ate more than 1,400 g/month. Excluding the non-consumers, the

> 90th percentile crab ingestion rate for crab consumers is estimated to be 3,590 g/month, or 32 g/day (assuming crabs are consumed 3.3 months of the year, per Table 2 of the paper). The mean crab ingestion rate is 16 g/day, based on data provided in Table 2 of the Burger (2002) paper (assuming that 5,760 g/year is consumed during 3.3 months of the year). This mean crab ingestion rate is consistent with the mean value of 16.6 g/day from Barnegat Bay (Burger et al. 1998). Burger et al. 1998 did not report enough information to support statistical calculations of a 95th percentile ingestion rate. Other studies in this area reported crab consumption but an ingestion rate could not be calculated based on the information presented (Burger et al. 1999 and Kirk-Pflugh et al. 1999)."

The CPG has previously documented numerous concerns with the use of the Burger (2002) study to derive crab (as well as fish) consumption rates, most recently articulated in the September 6, 2011 Position Paper. These include:

- the lack of reproducibility of Burger's data and limited statistics provided in Burger (2002),
- the inappropriateness of the data for estimating long-term consumption rates due to the survey methodology, including lack of a sound sampling design, recall bias (crabbing and consuming behaviors are based on one interview with each crabber during warm weather), and data collection methods;
- the lack of any discussion of survey weighting in the data analysis; and
- numerous unsupported assumptions used in calculating the annual consumption rate, including an assumed edible crab weight (70 grams) that is considerably higher than typical weights reported by CPG and NJDEP (40-45 grams).

These uncertainties are then compounded by Region 2's flawed methodology for utilizing the Burger (2002) data to develop an RME consumption rate, which is poorly described and documented in the Recommended Revisions. Following Region 2's analysis, the RME crab consumption rate of 32 g/day equates to consumption of approximately 263 crabs from the LPRSA per year[3]. When coupled with Region 2's assumed 30 year exposure duration for the recreational angler, this equates to nearly 8000 crabs from the LPRSA over a lifetime. When put into these terms, the absurdity of Region 2's RME and CTE crab consumption rates for the LPRSA is obvious, and underscores the inappropriateness of Region's 2 assumption that all of the crab consumed comes from the LPRSA (i.e., fraction ingested value is 1). All of these issues confirm that Region 2's consumption rates and fraction ingested values are not valid or appropriate for use in the baseline HHRA for the LPRSA. The CPG maintains that the ongoing year-long creel/angler survey of the entire Study Area will provide the data needed to derive robust, site-specific consumption rates for use in the baseline HHRA.

[3] Calculated assuming 3,590 grams of LPRSA crab/month, 3.3 months/year of crab consumption, and edible tissue weight of 45 grams/crab (average for LPRSA crabs caught in CPG's FSP2 2009 tissue sampling program).

6. ***Retraction of earlier agreement to discuss cooking loss options with CPG (Comments 112, 114, 115, 135)***

   CPG Position:

   The CPG provided a document to Region 2 on December 7, 2011 entitled, *"Literature on Cooking Loss in Fish Tissue"* and agreed to provide copies of the relevant papers to Region 2 during the week of December 12. In addition, on December 12, 2011, the CPG provided a document entitled, "Synopsis on Cooking Loss Topic" which outlines the basis of the issue that the CPG wishes to discuss with Region 2. To provide for a meaningful technical dialogue on this topic, the CPG recommends that this exchange be conducted outside of the dispute resolution process. This dialogue should include Region 2's Recommended Revision to include a CTE cooking loss factor of 20% for only PCBs in crab based on Zabik et al. (1992), and the compound-specific fish cooking loss values for PCBs, chlorinated pesticides and dioxins, given that lipophilic chemicals present in crab or fish tissue are expected to behave in a similar fashion.

7. ***Approach for evaluating exposure to sediment by residents (Comments 109, 118, 131)***

   CPG Position: CPG accepts Region 2's recommendation to remove the residential scenario from the quantitative HHRA. As noted above, CPG wishes to better understand Region 2's position on this issue, and have the opportunity to collaborate and participate with EPA on developing an approach for evaluating the residential scenario.

8. ***Deletion of references to pathogenic contamination (Comments 3, 90, 104, 128, 150)***

   CPG Position: While CPG accepts Region 2's decision to exclude references to pathogens from the RARC, for the record, CPG does not agree with this decision. CPG maintains that inclusion of pathogens in the discussion of background risks in the baseline HHRA provides useful and valuable context to stakeholders and risk managers. There is both site-specific data and established (EPA) methodology for assessing pathogen risks to users of the river. Inclusion of an analysis of these data does not diminish the significance of the CERCLA risks, but simply provides additional, relevant context regarding risks to river users. Further, CPG maintains that there is a contradiction in EPA's requirement for the CPG to evaluate swimming exposures in the baseline HHRA when there are frequent excursions in the freshwater segment of the bacterial standards established by the state of New Jersey for protecting public health. The CPG reserves its rights to continue to document its disagreement with Region 2 on this issue. The CPG accepts Region 2's December 5 recommended revision to comments 104 and 105, with the recommended clarification identified in CPG's December 7 comments on revised text to ensure accuracy ("though this stretch of the river *frequently does not* meet the standards associated with this classification").

9. ***Deletion of statements supporting consideration of site-specific data (Comments 78, 110a)***

   CPG Position: CPG accepts Region 2's December 5 recommended revisions to the above comments, with the recommended clarification identified in CPG's December 7 comments on revised text for comment 78 to ensure accuracy. The CPG reserves its rights to continue to document its disagreement with Region 2 on this issue.

10. ***EPA has removed the term "urban" from the RARC as it pertains to reference and background for the river conditions (Comments 8, 18, 68)***

    CPG Position: CPG understands that Region 2 has not changed its position from its July 11, 2011 comment. CPG wishes to discuss the specific language to be used since the word "urban" is used in the Region 2-approved PFD.

11. ***EPA has requested that the mummichog testable risk question be changed from that in the EPA-approved PFD.***

    CPG Position: CPG understands that Region 2 has withdrawn this comment, and the risk question may be left as is, consistent with the wording in the PFD. CPG also understands that egg numbers from the literature must be presented in the BERA to provide context for evaluating the LPRSA results.

The CPG appreciates Region's 2 decisions to address positively some of the RARC dispute resolution issues (i.e., HHRA Issue 6 and ERA Issue 2). The CPG believes that the following overarching issues that caused the CPG to invoke and identify the original eleven dispute resolution issues remain unresolved and have not been adequately addressed by the process to date:

- Compounding conservatism – risk estimates will be the product of multiple extreme and overly conservative assumptions that do not represent reasonable maximum exposures for the LPRSA;
- Lack of consideration for the true range of potential site-specific exposures (variability and uncertainty are not adequately acknowledged in the RARC) – human health estimates will be driven by a limited set of assumptions that provide minimal realistic site-specific context for decision-makers; and,
- Lack of separation of the baseline risk assessment and risk management processes – the process is reversed for the LPRSA with management decisions preceding the baseline assessment

These overarching issues are exemplified by Region 2's positions and unwillingness to discuss current and future exposure scenarios (HHRA Issue 1) and fish and crab ingestion rates/fraction ingested (HHRA Issue 5). It is the CPG's hope that Region 2 will provide an opportunity for the CPG to present and discuss its views on conducting a realistic and site-specific human health risk assessment for the LPRSA.

The CPG requests that Region 2 include this letter in the administrative record for Operable Unit 2 of the Diamond Alkali Superfund Site, including the documents referenced in this letter that were provided to Region 2 on December 7, December 8, and December 12.

Very Truly Yours,

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